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2 December 1988

Mr. Eugene Fox
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Subject: Comments on the Operable Unit Feasibility Study (OUFS)
for the Burbank Well Field
Pacific Airmotive Corporation
Burbank, CA
(K/J/C 882504.00)

Dear Mr. Fox:

At your request we have reviewed the OUFS for the Burbank Well Field dated October 1988 prepared by James M. Montgomery, Inc. The OUFS was requested from the EPA on 9 November 1988 and was received on 30 November 1988. According to Mr. John Wactor of the EPA Region IX legal staff, the comment period for the OUFS review extends through 2 December 1988 and comments are considered timely if they are postmarked through that date. General comments which were prepared during the limited review time available are included herein.

The analysis of the remedial alternatives presented in the OUFS is based on an understanding of the nature of the groundwater contamination problem presented in Section 2, Volume 1. Section 2 summarizes the local hydrogeology, presents groundwater quality data for groundwater samples obtained from Burbank production wells, and portrays an estimated horizontal extent of groundwater impacted by chemicals. This portrayal of aquifer hydraulic parameters and contaminant locations are limited by the paucity of field data. Significant limitations are discussed below.

Groundwater quality data included in Section 2 are limited to data collected from 11 existing Burbank Public Services District (PSD) wells over a period of seven years. These data include eight months of results from June 1987 through February 1988 representing continuous sampling; the other data are yearly. Most of the data presented in Section 2 were obtained when all but the downgradient wells in the Burbank Well Field were inactive. Thus, the actual boundaries of the contaminant plume and an observed rate of migration under pumping conditions have not been verified.

The OUFS states that "Sources of contamination of the aquifer beneath the Burbank OUFS area are currently unknown." (Volume 1, Page 2-9). The figures depicting plume isopleths (contours) may also not accurately define the actual extent and concentrations of volatile organic chemicals (VOCs) in the groundwater. As indicated in the report, "Thus, these contours are hypothetical constructs which support the model representation of the aquifer and do not necessarily represent discrete data from individual depth-specific wells at discrete times. The usefulness of the figures is in graphically displaying the depth-averaged plume representation based on model assumptions." (Volume 1, Page 2-9).

The primary difficulty in evaluating the conclusions presented in the OUFS is that a Remedial Investigation following EPA guidance documents has not been performed to obtain the site specific data suggested above. As a result, the groundwater models relied on in the OUFS are based on generalities describing the subsurface conditions. Examples of the generalities incorporated into the model which contribute to the difficulties in evaluating the model results are:

- Assuming that the 500-foot thick saturated zone is homogeneous (i.e., not layered),
- Assuming that the hydraulic conductivity and inferred aquifer storage are sufficiently uniform to support the proposed extraction rates,
- Obtaining groundwater quality from wells screened over multiple aquifers (this limitation is noted in the OUFS, Volume 1,C-3),
- Assuming a simple plume configuration (i.e., minimal attenuation or temporal variability).

Several of the hydraulic parameters included in the groundwater model developed for the OUFS study area are based on assumed values. These include an effective porosity of 0.20 and an estimated hydraulic conductivity of 1,200 gallons per day per foot squared. These parameters were used to calculate a horizontal groundwater velocity of 4.0 feet per day (Volume 1, Page 2-7). The parameters for which values have been assumed would significantly influence the contaminant plume configuration generated by the model and influences the zone of capture and rate of migration of any VOCs present. Therefore, the hypothetical mass of VOCs escaping the conceptual groundwater extraction networks evaluated as alternatives in Section 4 may not be accurately modeled.

The EPA RCRA Groundwater Monitoring Technical Guidance Document suggests that a groundwater characterization include identification of certain site specific parameters. These include identification of source areas, contaminant plume boundaries, and hydraulic parameters such as groundwater pressures, gradients, and aquifer boundaries. These data provide the necessary information to characterize specific stratum containing contaminants, flow directions and velocities so that remedial alternatives can be adequately evaluated.

Because the proposed model is founded on so many assumptions, it is impossible to evaluate how accurately groundwater modeling used for analyzing the various groundwater extraction alternatives predicts the effectiveness of contaminant capture. Thus, without more groundwater quality data, one cannot concur that Alternative Number 5 (the preferred alternative) will meet the stated objectives of the remediation program. These objectives are to prevent further contamination of wells in the San Fernando Valley Groundwater Basin (SFVGB) and to provide a water supply that meets state and federal drinking water standards.

Our preliminary review of the modeled results presented in the OUFS indicates that the conclusions presented are consistent with the assumptions stated. However, it must be noted that the anticipated results are sensitive to small changes in the assumed hydraulic parameters. Thus, concentrations of VOCs in groundwater and pumping rates may vary significantly and impact costs and effectiveness in intercepting the chemical plume.

In evaluating the proposed alternatives, the weighting given to technologies proven to be effective in large scale operations appears excessive in light of Section 209 of the recent SARA amendments which promotes the use of new and innovative technology. Therefore, it is inappropriate to discount technologies such as vacuum stripping technology being employed by Lockheed or other technologies presented in Table 3.2.2 of Section 3, Volume 1, without pilot scale testing.

In conclusion, the hydrological and groundwater quality conditions defined in the OUFS are based on a set of assumptions which have not been verified by field investigations. The boundaries of the suspected chemical plume in the groundwater are not defined, thus, it is possible that a treatment facility location selected on the basis of the OUFS modeling will not be in an optimum location. Thus, it is premature to select with confidence any of the groundwater extration networks as the preferred alternative that will meet the stated objectives of the OUFS. Although pilot scale programs allow for program refinements to account for varying groundwater chemistry, such a program will not be beneficial if the treatment facilities are not located appropri-

ately relative to the chemical plume boundaries. The OUFS recognizes in several sections (Volume 1, Sections 2,3, and 4) that significant additional field investigations are required to develop more specific rather than average model parameters.

If you have any questions regarding our comments, please do not hesitate to call us.

Very truly yours,

KENNEDY/JENKS/CHILTON

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w/ a note from me. Thx Patti Clearing